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the University of Chicago, president of the American Association for the Advancement of Science.

#### DISCUSSION AND CORRESPONDENCE

##### THE EFFECTS OF PARASITIC CASTRATION IN INSECTS

IN his very interesting paper on the above subject published in the *Journal of Experimental Zoology*, for July, 1910, Professor W. M. Wheeler says (p. 419) that "Giard has given good reasons for supposing" that the dimorphism exhibited by the forceps of male earwigs from the Farne Islands, Northumberland,<sup>1</sup> is due to "differences in the number of gregarines they harbor in their alimentary tract." The reference to Giard is *Comptes Rendus Acad. Sci.*, 1894, Vol. 118, p. 872.

J'ai tout lieu de croire qu'une interprétation du même genre (referring to the changes brought about in *Carcinus* by the action of parasites) peut s'appliquer pour la distribution des longueurs des pinces des Forficules mâles. Il est possible, en effet, d'après la longueur de la pince, de prévoir qu'une Forficule mâle possède des Grégarines et qu'elle en possède une plus ou moins grande quantité.

We do not, however, feel justified in regarding this passage alone (and there is no further account by the French observer) as direct evidence that Giard had examined the intestine of *Forficula* for gregarines and found a correspondence between their presence and the differing states of the male secondary sexual characters. In this connection we may record our own observations made to resolve this debatable point. In 1907 we visited the Farne Islands and collected several thousand earwigs. Over fifty dimorphic males were carefully dissected and a large gregarine (presumably *Gregarina ovata*) was found to occur commonly in the alimentary canal. Examples were, however, contained indifferently in low males as well as high; in both they were sometimes absent and no correlation could be observed between the number of parasites in an individual and the length of its forceps. It may at the same time be mentioned that no

difference in the development of the testes or other internal sexual organs could be detected in high and low males respectively.

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##### MONO- AND DI-BASIC PHOSPHATES

RECENTLY my attention has been directed to the confusion in the use of the terms "mono-" and "dibasic" as applied to the alkali salts of orthophosphoric acid. As certain authors make use of these terms without further qualification, it seems desirable to call attention to the conflicting use of these terms and to urge instead the use of more precise designations.

Orthophosphoric acid,  $H_3PO_4$ , is generally considered to be a tribasic acid. As salts of this acid, it seems only logical to call  $KH_2PO_4$  dibasic, and  $K_2HPO_4$  monobasic. In Merck's and some other catalogues,  $KH_2PO_4$  is called monobasic, and  $K_2HPO_4$  dibasic. These firms commonly send out their preparations labeled as follows: "Potassium phosphate—Dibasic," and "Potassium phosphate—Monobasic."

No further explanation appears on the label, and unless one happens to consult the catalogue (and this does not always explain) one is apt to get curious results in the use of these salts. The more serious difficulty appears, however, in the use—without other qualification—of the terms "mono-" and "di-basic phosphate" in literature. This is frequently the case in physiological and bacteriological papers. In discussion of the matter with a number of technical chemists it was evident that the conflicting use of these terms was not confined to biologists.

In view of the confusion resulting from the uncertain use of the terms "mono-" and "di-basic" as applied to the alkali phosphates, I would urge all workers—and chemical supply houses—to discontinue the use of these terms and to substitute more exact terms, such as primary, secondary and tertiary, respectively, for the salts  $KH_2PO_4$ ,  $K_2HPO_4$ ,  $K_3PO_4$ . It

<sup>1</sup> Bateson and Brindley, *Proc. Zool. Soc. London*, 1892, p. 585.